

PRODUCT SPECIFICATION GUIDE
EXTERIOR SUN CONTROL DEVICES
FACILITY CONSTRUCTION SUBGROUP: DIVISION 10 SPECIALTIES

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section include the following:
 - 1. Horizontal, fixed, extruded-aluminum sun control assemblies.
- B. Related Sections Include the following:
 - 1. Division 5 Section "Structural Steel" for supporting structure.

1.3 PERFORMANCE REQUIREMENTS

- A. Structural Performance: Provide exterior sun control assemblies capable of withstanding the effects of loads and stresses from dead loads, live loads, snow loads, snow drift loads, wind loads, and normal thermal movement without evidencing permanent deformation of assembly or components including blades, frames, and supports; noise or metal fatigue caused by blade rattle or flutter; or permanent damage to fasteners and anchors.
 - 1. Dead Load: As required by applicable building code.
 - 2. Live Load: As required by applicable building code.
 - 3. Snow Load: As required by applicable building code.
 - 4. Snow Drift Load: As required by applicable building code.
 - 5. Wind Load: Uniform pressure (velocity pressure) of (Insert Design Criteria) lb./sq. ft. (Insert Design Criteria Pa), acting inward or outward.
 - 6. Thermal Movements: Provide assemblies that allow for thermal movements resulting from the following maximum changes (range) in ambient and surface temperatures by preventing buckling, opening of joints, overstressing of components, and other detrimental effects:
 - a. Temperature Change (Range): 120 deg F (67 deg D), ambient; 180 deg F (100 deg C), material surfaces.

1.4 SUBMITTALS

- A. Product Data: For each type of product specified.
- B. Shop Drawings: For grille or screen units and accessories. Include plans; elevations; sections; and details showing profiles, angles, and spacing of elements. Show unit dimensions related to wall openings and adjacent construction; profiles of frames at jambs, heads, and sills; and anchorage details and locations.
 - 1. For installed grilles and screens indicated to comply with design loadings, include structural analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

- C. Samples for Initial Selection: Manufacturer's color charts showing the full range of colors available for units with factory-applied color finishes.
- D. Samples for Verification: Of each type of metal finish required, prepared on Samples of same thickness and material indicated for final Work. Where finishes involve normal color and texture variations, include Samples sets showing the full range of variations expected.
- E. Qualification Data: Fir firms and persons specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.

1.5 QUALITY ASSURANCE

- A. Field Measurements: Verify actual supporting and adjoining construction by field measurements before fabrication; and indicate recorded measurements on final Shop Drawings. Coordinate construction to ensure that sun control assemblies fit properly to supporting and adjoining construction and coordinate schedule with construction progress to avoid delaying the Work.
 - 1. Established Dimensions: Where field measurements cannot be made without delaying the Work, guarantee dimensions and proceed with fabricating of sun control assemblies without field measurements. Coordinate construction to ensure that sun control assemblies correspond to established dimensions.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements provide products manufactured by:
 - 1. The AIROLITE Company, LLC, Marietta, OH; Phone 740 373 7676; Fax 740 373 6666; email info@airolite.com; and, web <http://www.airolite.com>

2.2 MATERIALS

- A. Aluminum Extrusions: ASTM B 221 (ASTM B 221M), alloy 6063-T5 or T-52.
- B. Aluminum Sheet: ASTM B 209 (ASTM B 209M), alloy 3003 or 5005 with temper as required for forming, or as otherwise recommended by metal producer for required finish.
- C. Aluminum Castings: ASTM B 26/B 26M, alloy 319.
- D. Galvanized Steel Sheet: ASTM A 653/A 653M, G90 (Z275) zinc coating, mill phosphatized.
- E. Stainless-Steel Sheet: ASTM A 666, Type 302 or 304.
- F. Fasteners: Of same basic metal and alloy as fastened metal or 300 series stainless steel, unless otherwise indicated. Do not use metals that are incompatible with joined materials.
 - 1. Use types and sizes to suit unit installation conditions.
 - 2. Use Phillips flat-head screws for exposed fasteners, unless otherwise indicated.
- G. Anchors and Inserts: Of type, size, and material required for loading and installation indicated. Use nonferrous metal or hot-dip galvanized anchors and inserts for exterior installations and elsewhere as needed for corrosion resistance. Use toothed steel or expansion bolt devices for drilled-in-place anchors.
- H. Bituminous Paint: Cold-applied asphalt mastic complying with SSPC-Paint 12 but containing no asbestos fibers, or cold-applied asphalt emulsion complying with ASTM D 1187.

2.3 FABRICATION, GENERAL

- A. Assemble sun control assemblies in factory to minimize field splicing and assembly. Disassemble units as necessary for shipping and handling limitations. Clearly mark units for reassembly and coordinated installation.

- B. Sun control assemblies shall be assembled entirely by welding. Components shall be joined with a minimum of two fillet welds each one-inch (25.4 mm) long produced with the Pulsed Gas Metal Arc Welding (GMAW/MIG) process with minimum 0.125" (3.18 mm) throat.
- C. Maintain equal sun control blade spacing to produce uniform appearance.
- D. Include supports, anchorages, and accessories required for complete assembly.
- E. Join fixed sun control blades, fascia, outriggers and mounting plates with fillet welds concealed from view, unless size of sun control assembly makes concealed, bolted connections between frame members necessary.

2.4 HORIZONTAL, FIXED, EXTRUDED-ALUMINUM SUN CONTROLS

- A. Horizontal, fixed, extruded-aluminum sun control assemblies complying with the following:
 1. Blade: Specify blade profile, material and thickness, as indicated.
 2. Fascia: Specify fascia profile, material and thickness, as indicated.
 3. Outrigger: Specify outrigger profile, material and thickness, as indicated.

2.5 FINISHES, GENERAL

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Finish sun controls after assembly.

2.6 ALUMINUM FINISHES

- A. Finish designations prefixed by AA comply with system established by the Aluminum Association for designating aluminum finishes.
- B. Class I, Clear Anodic Finish: AA-M12C22A41 (Mechanical Finish: nonspecular as fabricated; Chemical Finish: etched, medium matte; Anodic Coating: Architectural Class I, clear coating 0.018 mm or thicker) complying with AAMA 607.1.
- C. Class I, Color Anodic Finish: AA-M12C22A42/A44 (Mechanical Finish: nonspecular as fabricated; Chemical Finish: etched, medium matte; Anodic Coating: Architectural Class I, integrally colored or electrolytically deposited color coating 0.018 mm or thicker) complying with AAMA 606.1 or AAMA 608.1.
 1. Color: Light bronze.
 2. Color: Medium bronze.
 3. Color: Dark bronze.
 4. Color: Black.
 5. Color: Match Architect's sample.
 6. Color: As selected by Architect from the full range of industry colors and color densities.
- D. Conversion-Coated Finish: AA-C12C42 (Chemical Finish: cleaned with inhibited chemicals; Chemical Finish: acid-chromate-fluoride-phosphate conversion coating).
- E. Conversion-Coated and Factory-Primed Finish: AA-C12C42R1x (Chemical Finish: cleaned with inhibited chemicals; Chemical Finish: acid-chromate-fluoride-phosphate conversion coating; Organic Coating: as specified below).
 1. Organic Coating: Air-dried primer of not less than 2.0 mil (0.05 mm) dry film thickness.
- F. Baked-Enamel Finish: AA-C12C42R1x (Chemical Finish: cleaned with inhibited chemicals; Chemical Finish: acid-chromate-fluoride-phosphate conversion coating; Organic Coating: as specified below). Apply baked enamel complying with paint manufacturer's specifications for cleaning, conversion coating, and painting.
 1. Organic Coating: Thermosetting, modified-acrylic enamel primer/topcoat system complying with AAMA 603.8, except with a minimum dry film thickness of 1.5 mils (0.04 mm), medium gloss.
 2. Color: As indicated by manufacturer's color designations.
 3. Color: Match Architect's sample.

4. Color: As selected by Architect from manufacturer's full range of colors.
- G. High-Performance Organic Coating Finish: AA-C12C42R1x (Chemical Finish: cleaned with inhibited chemicals; Chemical Finish: acid-chromate-fluoride-phosphate conversion coating; Organic Coating: as specified below). Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.
 1. Fluoropolymer Two-Coat Coating System: Manufacturer's standard two-coat, thermocured system consisting of specially formulated inhibitive primer and fluoropolymer color topcoat containing not less than 70 percent polyvinylidene fluoride resin by weight; complying with AAMA 605.2.
 2. Fluoropolymer Three-Coat Coating System: Manufacturer's standard three-coat, thermocured system consisting of specially formulated inhibitive primer, fluoropolymer color coat, and clear fluoropolymer topcoat, with both color coat and clear topcoat containing not less than 70 percent polyvinylidene fluoride resin by weight; complying with AAMA 605.2.
 - a. Color and Gloss: As indicated by manufacturer's color and gloss designations.
 - b. Color and Gloss: Match Architect's sample.
 - c. Color and Gloss: As selected by Architect from manufacturer's full range of colors and glosses.

3.1 PREPARATION

- A. Coordinate Setting Drawings, diagrams, templates, instructions, and directions for installation of anchorages that are to be embedded in concrete or masonry construction. Coordinate delivery of such items to Project site.

3.2 INSTALLATION

- A. Locate and place sun control assemblies level, plumb, and at indicated alignment with adjacent work.
- B. Use concealed anchorages where possible. Provide brass or lead washers fitted to screws where required to protect metal surfaces and to make a weathertight connection.
- C. Form closely fitted joints with exposed connections accurately located and secured.
- D. Repair finishes damaged by cutting, welding, soldering, and grinding. Restore finishes so no evidence remains of corrective work. Return items that cannot be refinished in the field to the factory, make required alterations, and refinish entire unit or provide new units.
- E. Protect galvanized and nonferrous-metal surfaces from corrosion or galvanic action by applying a heavy coating of bituminous paint on surfaces that will be in contact with concrete, masonry, or dissimilar metals.

3.3 CLEANING AND PROTECTING

- A. Periodically clean exposed surfaces of sun control devices that are not protected by temporary covering to remove fingerprints and soil during construction period. Do not let soil accumulate until final cleaning.
- B. Before final inspection, clean exposed surfaces with water and a mild soap or detergent not harmful to finishes. Thoroughly rinse surfaces and dry.
- C. Protect sun control assemblies from damage during construction. Use temporary protective coverings where needed and approved by the sun control manufacturer. Remove protective covering at the time of Substantial Completion.
- D. Clean and touch up minor abrasions in finishes with air-dried coating that matches color and gloss of, and is compatible with, factory-applied finish coating.